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ABSTRACT

The Preschool Preposition Test (PPT), a receptive language test for children ages 3 to 5, is a brief simple gross developmental screening instrument still in research status. For 985 normal subjects the test shows a significant correlation of scores with age. Significant correlations have been obtained between PPT scores and raw scores on the Peabody Picture Vocabulary Test for normal children and for mentally retarded older children functioning at a preschool level. Findings of two small samples suggest a link between PPT scores and mothers' nurturant and verbal behavior. Test materials from the authors are available on loan to researchers. (Author)

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TITLE: PRESCHOOL PREPOSITION TEST: A PRELIMINARY REPORT

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PRESCHOOL PREPOSITION TEST: A PRELIMINARY REPORT

May Aaronson and Julie Phillips

The Preschool Preposition Test (1968) is a receptive language test for children ages 3 to 5. It is useful as a gross screening instrument for young children, including those with delayed language development or behavior problems, and for older mentally retarded children. The test is a brief, easy, and inexpensive test to administer. Paraprofessionals and volunteers can handle a testing program with minimal training and supervision. Because children find the testing materials appealing, a high level of cooperation is typical.

The PPT was first used in 1968 to evaluate the effects of home-tutoring on the intellectual functioning of three-year-olds. The test was developed because knowledge of prepositions was found to correlate with verbal and spatial abilities in the early years (Bayley, 1967). Preschoolers are not typically evaluated for comprehension of a range of these terms. George Miller (1976) reviews the research involving prepositions associated with spatial relations and remarks on their cognitive complexity. They are sometimes called locatives or spatial locatives, he says, "because their grammar is too complicated to justify calling them simply prepositions." This is the category of words and phrases which the Preschool Preposition Test examines.

Since our initial use of the PPT, the test materials have been loaned to other researchers who have contributed much of the data reported in this

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We wish to express our sincere appreciation to Darryl Bertolucci for assistance with statistical and computer analysis of the data and to Doris Aaronson for consultation in psycholinguistics and for critical comments on a previous draft of this report. We wish to thank John Bartko for statistical consultation and Earl Schaefer for his supportive role in the development of the Preschool Preposition Test.

paper. We are continuing to do research with this instrument.

METHODS

Testing Materials and Procedure

The PPT testing materials consist of four items: (1) a yellow metal board, 12 by 20 inches, with slightly raised figures of a red boy facing a green car; (2) a small, halved red rubber ball, with a magnetized flat surface; (3) an Individual Test Record form; and (4) a black and white Picture Score Sheet which is a replica of the testing board. For greater accuracy in recording, both the yellow testing board and the Picture Score Sheet have superimposed on them a grid with two inch squares.

Each child is tested individually. The testing can take as little as 5 minutes with an experienced Examiner and a cooperative child. The Examiner demonstrates that the halved ball sticks firmly anywhere on the upright test board and invites the child to place the ball in various places. The Examiner then administers the test by reading the 23 items in the proper sequence from the Individual Test Record. A raw score is obtained, with one point earned for each correct response. The Examiner has two options for scoring the test. (S)he can record pass/fail judgments directly onto the Individual Test Record while testing. Alternatively, (s)he can position an X and the item number on the picture score sheet corresponding to the child's placement and later score pass/fail judgments. The former method is more rapid for an experienced tester. But the latter procedure is generally recommended for a number of reasons: (1) It eliminates the well-known "halo" effect; i.e., the possibility that the Examiner's

impression of the child's ability will influence his/her scoring; (2) It eliminates errors in judgment or recording which occur in the heat of testing; (3) It provides a permanent record of the child's placements, making it possible for the same or another person to double-check the scoring; (4) It makes it possible to run a large testing program with briefly trained nonprofessionals, leaving the subsequent scoring to professional testers; and (5) It makes it possible to analyze the specific nature of the errors for prescriptive purposes.

The PPT Individual Test Record is divided into two parts. Part I tests in a systematic way the child's comprehension of the key nouns used with the prepositions in Part II. Examples of Part I items are: (1) Show me the boy's hands, and (2) Show me the boy's head. The Examiner is directed to teach the meaning of any nouns the child doesn't understand. The Examiner then proceeds to Part II, the actual test. Examples of Part II items are: (1) Put the ball into the boy's hands, into the boy's hands, and (2) Put the ball up as high on the board as you can, up as high on the board as you can. Only scores of Part II are reported in this paper. (See Appendix)

Subjects and Measures

Our data on the PPT, gathered during the past 10 years, are based on 1,250 protocols collected on 1,170 children ages 2 to 7 years, and older mentally retarded. Our sample represents Black and Caucasian, lower-, middle- and upper-middle class and populations from rural, suburban and urban areas. The samples vary geographically including the East (Maine, Maryland, New York State, Washington, D. C.), the Midwest (Kansas, Michigan), the South (North Carolina), and the West (Utah). The data from 14 of the

samples are reported here in some detail. Included are all of the children (N=985) evaluated in normal settings, and we refer to them as "Normal" children. Detailed descriptive information of these subjects is contained in Table 1. Data from four additional samples obtained from special settings will be reviewed briefly later in the paper and are referred to as "Other than Normal." They consist of homeless children in a residential institution, those with serious behavior problems, and over-age mentally retarded.

Of the "Normal" samples, eight (N=328) were obtained from urban settings, two (N=145) from suburban settings, three (N=218) from suburban to rural settings, and one (N=294) from an extremely rural setting. Three of the samples (N=452) are Caucasian, two (N=55) are Black, and nine (N=478) are racially mixed. Five samples (N=392) are lower class, two groups (N=158) are upper-middle-class, and seven (N=435) are mixed socio-economic status. Determinations of SES have been made from global descriptions of the samples and not from specific data collected on individual children. The children are listed in three age groupings, the youngest (N=101, ages 23-35 months), the ages for which the PPT is recommended (N=612, 36-60 months), and the oldest (N=272, 61-90 months).

For six of the samples no other forms of evaluation were used with the PPT. For eight of the samples, various combinations of instruments were used (Table 1). However, not every child in a sample was administered each instrument listed. Other measures used were: Stanford-Binet (S-B), Peabody Picture Vocabulary Test (PPVT), Johns Hopkins Perceptual Test (JHPT), Classroom Behavior Description (CBD), Mother's Behavior with Tutor and Child, and Parent and Child Together (PACT). Additional measures were typically obtained either at the PPT

testing session or close to that time.

RESULTS FOR "NORMAL" SAMPLES

Subject Variables

For the 985 "Normal" children, ranging in age from 23 to 90 months in 14 different samples, a correlation coefficient of .63 ($p < .001$) was obtained between Total PPT Scores and Ages in Months. Table 2 presents the mean scores by six month age intervals for the "Normal" children. The youngest children, age 23 months, earned a mean score of 7 out of a possible 23 while the oldest at 90 months reached a mean score of 21.5. The progression of mean scores with age can be noted up to about "60-65" months at which time there is a leveling off. This is a "ceiling effect" as there are only 23 items on the PPT.

A graph (Fig. 1) shows the breakdown of the "Normals" by sex, with a comparison of the mean scores for boys and for girls ages 24-83 months. As the PPT board/picture depicts a male figure, the question arises whether scores show a sex bias in favor of the boys. As can be seen by inspection of the graph, the sex differences are negligible and, if anything, tend to favor the females at the earlier ages. Other cognitive tests generally show female superiority during the earlier years (Maccoby, E.M. and Jacklin, C.N. 1974). When one examines the PPT scores by social class, differences emerge. The graph in Figure 2 shows a comparison of mean scores from two-upper-middle class urban samples (N=158) with that of an EPSDT* (Medicaid, 1973) lower-class rural sample (N=294). Only white samples have been chosen in order to

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*EPSDT - Early and Periodic Screening, Diagnosis and Treatment Program, a Medicaid program for children eligible for welfare.

control for race. It can be seen that the higher SES samples have better scores at each age level and attain near perfect scores at earlier ages.

Item Analysis and Test Reliability

Item analysis of the 23 items is reported for a total of 779 "Normal" subjects, ages 23 to 90 months. This includes all item scores made available to us by users of the test. As a measure of internal consistency, scores on every PPT item correlated significantly with scores on the test as a whole ($p < .005$), i.e., for each individual test item, children with higher total scores more frequently passed the item than children with lower scores. Additionally, most PPT items correlated significantly with one another and with Age in Months. The exceptions were Items 12, 15 and 22; and it is planned to eliminate these three items from the PPT. Of the remaining 20 items, the average correlation coefficient with Total Test Score is .55, with 10 of these exceeding .60. As an additional measure of internal test consistency, the K-R 20 reliability coefficient alpha was computed and has a value of .86 (Kuder-Richardson, 1937).

The Rank Order of Difficulty of the items is reported in Table 3. The table ranks the order of difficulty according to the percentage of the total sample passing each item. The easiest preposition is part of the phrase "in a car window" (Item 23, Rank 1), and "between the car wheels" contains the most difficult one (Item 10, Rank 23). Almost 20% more children were able to locate "between the boy and the car" (Item 13, Rank 20) than "between the car wheels." Between may be easier to locate when it is intermediate to two different objects than two of the same. Also, prepositions that occur more frequently in adult vocabulary; such as in, at, up and on tend to be

easier for the children than those that occur less frequently, such as beneath, below, near, behind, above, under and between (Kucera, H. and Francis, W. N., 1970).

Test Validity

For the aggregate of 985 "Normal" children, ranging in age from 23 to 90 months in 14 different samples, a correlation coefficient of .63 ($p < .001$) was obtained between the PPT Total Score and Age in Months. A valid test of language development should show increasing scores with age. The PPT's validity is also supported by higher test scores for upper middle-class children who tend to receive greater and more varied opportunities for language development in the homes. Many of the results reported under "Behavioral Data" add additional support to the validity of the PPT.

A major emphasis has been placed on comparison of the PPT scores with those of the PPVT because of certain similarities between the two instruments. They are both multiple-choice receptive language tests in which the child makes a non-verbal "placing" or "pointing" response to a simple directive. The PPT items, however, are based on prepositions, abstractions associated with space relations, whereas the early PPVT items are based on concrete nouns or action verbs. Here are examples of the difference:

PPT	PPVT
Put the ball underneath the car.	Show me teacher.
Put the ball between the car wheels.	Show me picking.

Other differences are that the PPT is very brief, is suitable only for preschool ages, and presents the items in scrambled order of difficulty; whereas the PPVT is a much longer test, from preschool to adulthood, with

items presented in order of increasing difficulty. The PPVT is a widely accepted developmental test with much validity and reliability data. Notwithstanding the differences between the PPT and the PPVT, the similarities remain impressive, and strong correlations between them should help to establish the validity of the PPT.

For 122 subjects who were administered both the PPT and the Peabody Picture Vocabulary Test, the following correlation coefficients were obtained: .72 with the PPVT Raw Score, .30 with the I.Q., and .69 with the Mental Age, all significant ($p < .005$ level). The comparison between the raw scores of the two tests, the most logical one to make, produced the highest correlation coefficient, .72.

In two home-based intervention projects in which the PPT, the PPVT, and the Stanford-Binet were administered (Table 4) the PPT correlated about as well (or better) with the other two tests as they correlated with each other ($p < .001$ or $< .005$).

Behavioral Data

Teachers' ratings of the child's behavior were obtained for 122 subjects in three of the samples on the Aaronson-Schaefer Classroom Behavior Description (CBD). The CBD contains 10 brief items related to classroom adjustment and ability plus a global rating of classroom adjustment. Examples of the items are: Is Considerate and Kind, Is Distractible and Hyperactive, Is Able in Comprehension and Problem-Solving (Table 5). The PPT attained significant correlations ($p < .005$) with 7 out of 10 items plus the global rating of classroom adjustment. The highest correlation coefficient, .57, was attained with the only cognitive item, Is Able in Comprehension and

Problem-Solving. The Adjustment rating was .41 ($p < .005$).

Ratings of Maternal Behavior were obtained from the experimental groups in two home-based intervention projects (Tables 6 and 7). In both projects correlations at significant or near significant levels were obtained between the PPT scores and ratings related to Mother's Nurturance and Verbal Interaction with the child. In contrast, the S-B and PPVT scores showed less or no relationship to maternal behavior on the same rating scales.

Home Tutoring and the PPT Scores

Tables 4a and 4b compare the data acquired from the two home-based intervention projects designed to raise the child's intellectual functioning and social-emotional behavior through promoting increased verbal interaction and improving the nurturant climate in the home. The Washington, D. C. project was child-focused. The mother was invited, but not required to take part. The Freeport, N. Y. project, however, was focused on the mother and she was required to participate. Note in Table 4a that the PPT correlated significantly with the PPVT and the S-B in both projects as well or better than the other 2 tests correlated with one another. Now examine Table 4b. We have a curious phenomenon. Although for the Washington, D. C. project there is a significant increase in scores on the S-B and the PPVT for the Experimental group over the Control, this is not true for the PPT. In the Freeport Project the difference in scores for the S-B and the PPVT between the Experimental and Control groups do not reach statistical significance, but at least the increases are in the expected direction. For the PPT, the Control group actually does a bit better than the Experimental group. Obviously the intervention made no difference in PPT scores for either project.

RESULTS FOR "OTHER THAN NORMAL" SAMPLES

As explained earlier there are four samples of children tested in special settings which we term "Other than Normal." There is no basis for analyzing these samples together; and a full reporting will have to await larger sample sizes in the various categories.

The samples consist of (1) 84 low SES urban black children ages 24 to 71 months, housed in a city institution for homeless children, (2) 16 mixed SES urban white children, ages 30 to 71 months, in a day treatment center for moderately emotionally disturbed, (3) 11 low SES urban white children, ages 36 to 77 months, in a State hospital nursery school for severely emotionally disturbed, and (4) 74 children of mixed SES and race, ages 5 to 17 years, in a school for mentally retarded students.

The PPT mean scores for the institutionalized children in Sample 1, arranged in six month age groupings, show a similar progression of scores with age as the "Normals;" however, the mean scores lag from six months to a year behind those of the "Normals." In contrast, for the emotionally disturbed children in Samples 2 and 3 many of the individual scores compare favorably with those of the "Normals." Their behavior problems did not prevent them from completing PPTs and demonstrating a mastery of the prepositions, although the testing time per subject was generally greater. Findings for Sample 4, the older mentally retarded students, are based on their Mental Age Scores on the PPVT, grouped in six-month intervals from 24 to 95 months. There is a progression of mean scores with Mental Age but with about a six month lag when compared with the "Normals." For the MR

total sample of 74 Ss, the PPT correlates significantly with the PPVT Raw Score, .59 ($p < .005$). However, their Classroom Behavior Ratings obtained on the CBD do not correlate very well with PPT scores, with one exception; statistical significance, .40 ($p < .005$), is reached with the only cognitive item, Is Able in Comprehension and Problem-Solving. Comparison of the Rank Order of Difficulty of the items for the MRs with those of the "Normals" shows several dissimilarities which will need further investigation.

It must be emphasized that findings with the PPT for the "Other than Normal" samples are presently of a tenuous nature. However, they are sufficiently promising to encourage further research in the areas described.

DISCUSSION

Preliminary investigations with the PPT indicate that the test's greatest discriminatory powers are in relation to the identification of the poorer scorers at preschool ages. Its usefulness as an instrument ceases at the point that a child achieves a high level of mastery of the prepositions in the test. This point is typically reached at about five to six years of age for "Normal" populations, although from among them it may be reached somewhat later for low-socio-economic status groups and earlier for upper middle-class groups. Within these limitations the PPT can play an important role in the early identification of developmental delay, notably in language development, and possibly in other areas as well.

The PPT's validity and reliability thus far are based on (1) its consistent significant progression of scores with age for 14 separate "Normal"

samples and for the 935 subjects, ages 23 to 90 months, who constitute the aggregate population of the samples, (2) its consistent significant correlations with well-established developmental tests such as the Stanford-Binet and the Peabody Picture Vocabulary Test, and (3) the internal consistency of the test construction, with all 23 items correlating with Total Test Score and most of the items correlating significantly with one another. Additionally, for several samples there is a high correlation between the PPT and teacher's ratings of Able in Comprehension and Problem-Solving and Adjustment, along with other traits generally regarded as related to school adjustment. No significant sex differences have been found; however, social class differences are apparent, especially for two white upper middle-class samples and a white poverty group being serviced by a Medicaid EPSDT* program.

While no claims are made that the PPT is an intelligence test, the test items are tapping some aspects of cognitive ability, perhaps related to verbal comprehension, abstract reasoning, and spatial relations. This is supported by the consistent significant correlations with recognized developmental tests.

The tutoring in two small home-based projects did not increase the scores on the PPT even though there were high correlations between the PPT and the other developmental tests used; but note that the PPT scores achieved the highest correlations among the three tests with Maternal Nurturance and Verbal Interactions with the child. What we have here is children's PPT scores related to Mother's nurturance and verbal behavior, but not influenced by the intervention. This phenomenon requires some attempt at interpretation. We have posited that certain rules of grammar connected with prepositions may be internalized much earlier than at 15-24 months of age when these two interventions were begun and that the Mother's behavior at earlier ages is

*EPSDT - Early and Periodic Screening, Diagnosis and Treatment Program for children eligible for welfare

influencing the outcome. Remember that Maternal Behavior ratings when the child was only 16 months of age, in the Washington, D.C. project (Table 6), were good predictors of the Child's PPT scores at age three. George Miller, in his book Language and Perception (1976) lends some support to our premise when he points out that the logic of space is complex and that "children acquire their initial familiarity with relativistic space in infancy as they learn to move about and to construct a stable, three-dimensional perceptual world." This would lend support to having parent-focussed interventions which would begin earlier than 15-24 months of age.

The "Other than Normal" samples, not reported here in detail because of relatively small sample sizes, suggest the usefulness of the PPT for emotionally disturbed and institutionalized children and for older mentally retarded students functioning at the preschool level. For 74 mentally retarded students, ages 5 to 17, statistically significant correlations were obtained between the PPT and the PPVT: and PPT scores show a good progression of scores with Mental Age as determined on the PPVT. Also, some of the children notwithstanding moderate to severe behavior problems were able to demonstrate average or above average mastery of the PPT. Researchers report that complete PPTs can usually be obtained for children with behavior problems but that the testing sessions take longer. Research is continuing with further samples of mentally retarded children; and the usefulness of the PPT for physically handicapped and autistic children is being explored.

The data reported in this preliminary report provide much evidence to attest to the potential usefulness of the PPT. The PPT could play a valuable role in the early identification of developmental delay in language comprehension and possibly in some areas related to social-emotional development. It lends itself to use in preschool gross screening programs in which a rapid, easy to administer, low cost evaluation is needed for early preventive or prescriptive intervention programs.

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Table 1

DESCRIPTION OF PRESCHOOL PREPOSITION TEST "NORMAL" SAMPLE

Sub-Sample	No. of Subjects	Area: Urban / Suburban / Rural	Race: Black / White	SES: Upper Middle / Lower / Mixed	Age In Months	Auxiliary Data*
1**	29	U	B	L	36-38	S-B, PPVT, JHPT, MB
2***	26	U	B	L	36-38	S-B, PPVT, JHPT
3	65	S	W	UM	30-65	None
4	80	S	B + W	Mix	54-90	None
5	81	S + R	B + W	Mix	42-65	CB
6	37	S + R	B + W	Mix	42-59	PPVT, CB
7	93	U	W	UM	36-71	None
8	26	U	B + W	Mix	30-65	None
9	66	U	B + W	Mix	36-71	None
10	43	U	B + W	Mix	48-65	None
11	294	R	W	L	24-89	PPVT
12	100	S + R	B + W	Mix	23-41	PPVT, CB
13**	26	U	B + W	L	40-54	S-B, PPVT, MB
14***	17	U	B + W	L	43-52	S-B, PPVT
Total	985	U 328 R 294 S 145 S+R 218	B 55 W 452 B+W 478	UM 158 L 392 Mix 435	23-35 101 36-60 612 61-90 272	

*Stanford-Binet, Peabody Picture Vocabulary Test,
Johns Hopkins Perceptual Text, Maternal Behavior Ratings,
Child Behavior (Classroom Behavior Description)
Note: Not all subjects in a given sample received each measure.

**Home-Based Program, Experimental Group

***Home-Based Program, Control Group

Table 2

PPT Scores by Age for "Normal" Subjects

Highest Possible PPT Score is 23 (Raw Score)

N = 985

Age in Months	N	Mean Score	S.D.
23	4	7.00	2.944
24-29	30	7.83	3.630
30-35	67	12.09	4.368
36-41	139	13.93	3.732
42-47	113	15.48	4.104
48-53	168	16.71	4.113
54-59	192	18.99	3.162
60-65	147	20.17	2.652
66-71	66	19.54	2.808
72-77	21	21.05	1.687
78-83	33	20.42	2.016
84-89	3	21.67	1.528
90	2	21.50	.707

FIGURE 1

SEX DIFFERENCES

Mean Preschool Preposition Test Scores by Six Month Age Groupings

For Male and Female "Normal" Subjects

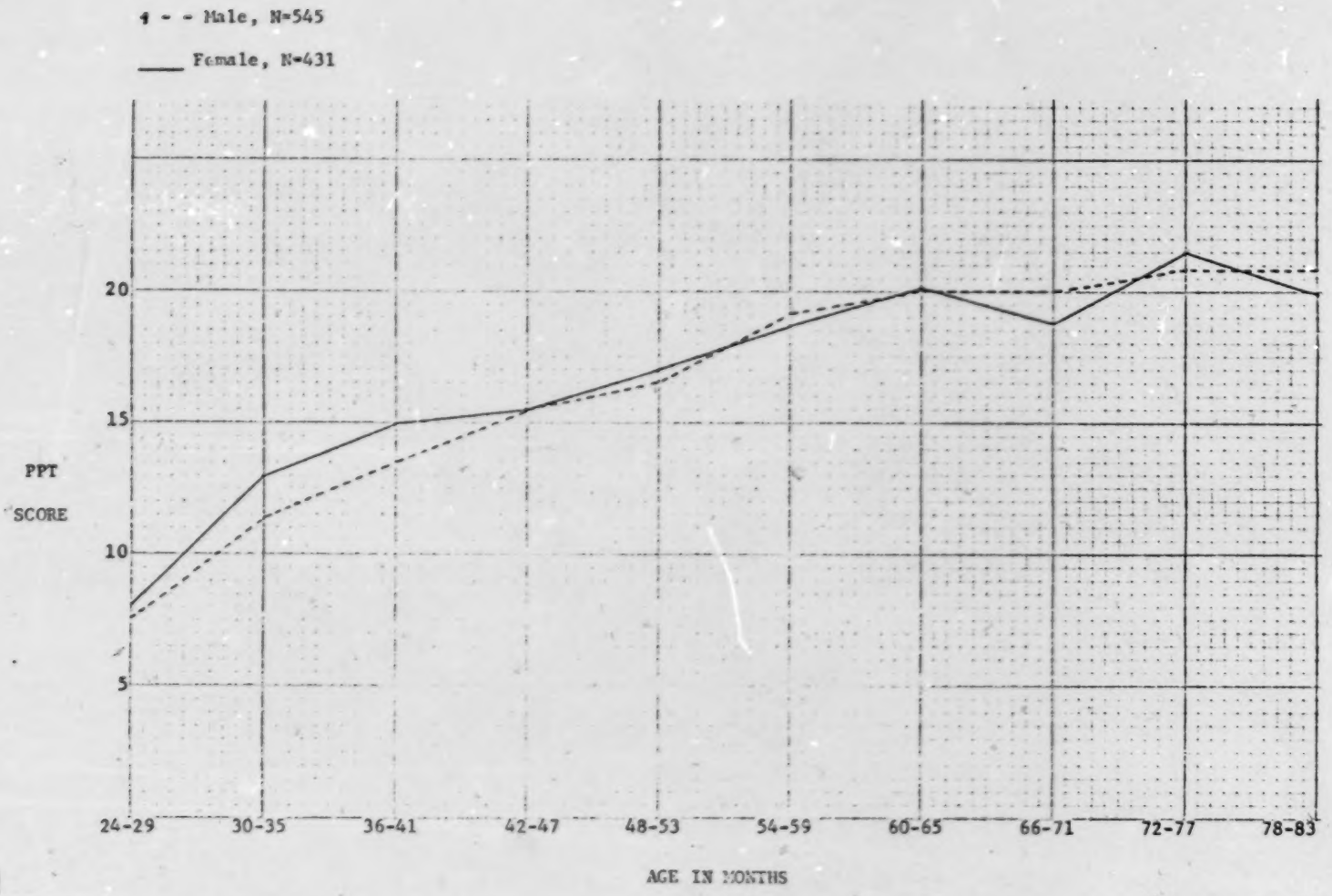


Figure 2

SOCIAL CLASS DIFFERENCES

Mean Preschool Preposition Test Scores by Six-Month Age Groupings

For White Upper-Middle Class Urban Subjects (Subsamples 3 and 7, Table 1)

And For White Lower-Class Rural Subjects (Subsample 11, Table 1)

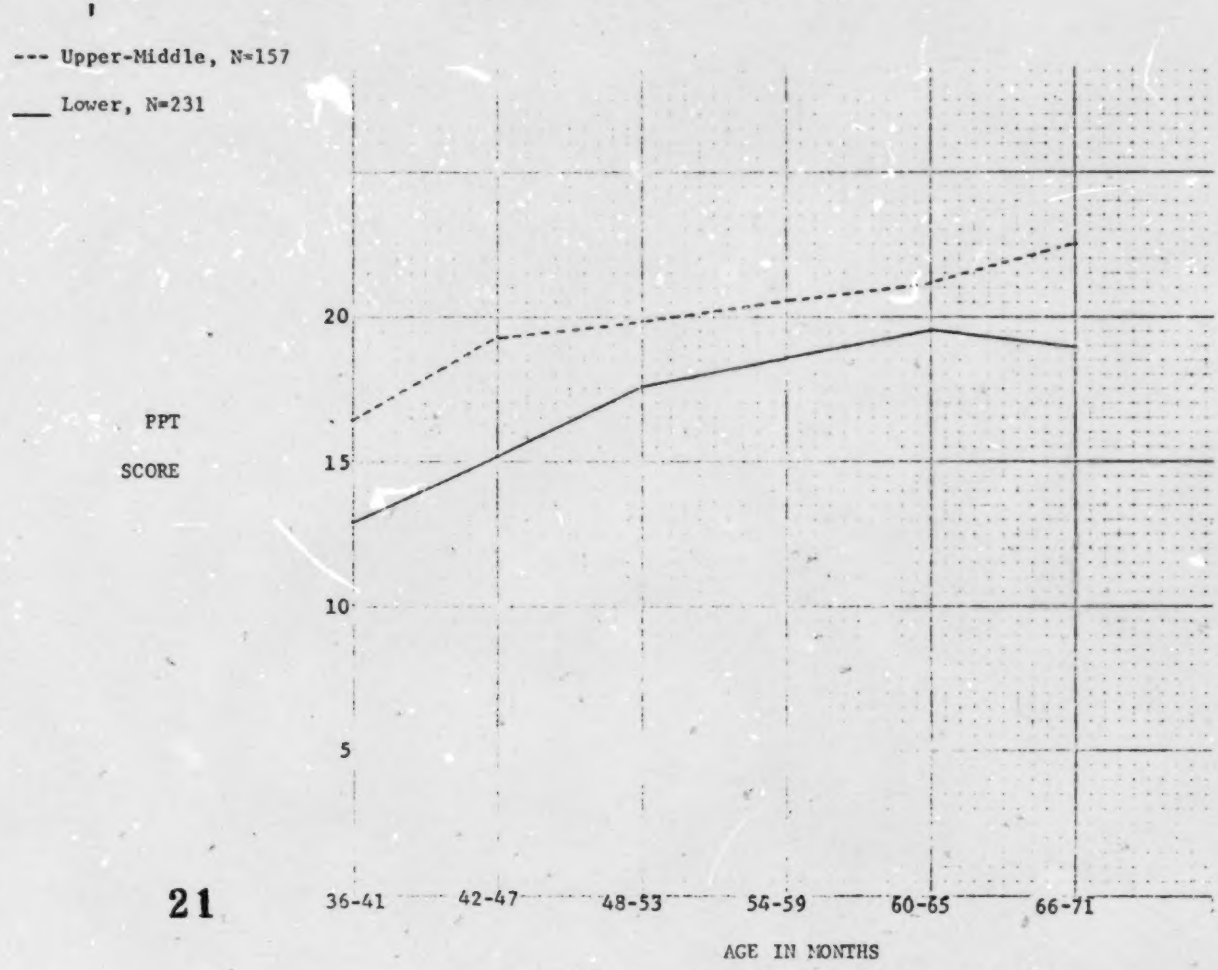


Table 3

PRESCHOOL PREPOSITION TEST

Item Difficulty for "Normal" Subjects: - Rank Order of Difficulty of Items and Percentage of Sample Passing Each Item N=779 Ages 23-90 Months

PPT Item #	Items in Order of Difficulty	Order of Difficulty	% Passing
23.	Put the ball in a car window, in a car window	1	96.9
21.	Put the ball at the top of the boy's head, at the top of the boy's head	2	93.6
4.	Put the ball inside the window of the car, inside the window of the car	3	92.0
2.	Put the ball up as high on the board as you can, up as high on the board as you can	4	90.6
22.	Pub the ball on the boy's shoe, on the boy's shoe	5	84.0
7.	Put the ball underneath the car, underneath the car	6	80.5
12.	Put the ball anywhere on the car, on the car	7	80.1
3.	Put the ball under the car, under the car	8	79.1
19.	Put the ball near the boy's shoe, near the boy's shoe	9	76.0
5.	Put the ball down as low on the board as you can, down as low on the board as you can	10	75.0
15.	Put the ball against the boy's head, against the boy's head	11	73.8
8.	Put the bal on the top of the car, on the top of the car	12	71.5
17.	Put the ball behind the boy, behind the boy	13	71.2
1.	Put the ball into the boy's hands, into the boy's hands	14	71.1
18.	Put the ball above the boy's head, above the boy's head	15	68.5
11.	Put the ball in back of the boy's shoe, in back of the boy's shoe	16	68.4
20.	Put the ball next to a wheel of the car, next to a wheel of the car	17	67.9
9.	Put the ball in front of the boy, in front of the boy	18	67.7
16.	Put the ball beneath the car, beneath the car	19	61.7
13.	Put the ball between the boy and the car, between the boy and the car	20	61.0
6.	Put the ball in back of the car, in back of the car	21	59.3
14.	Put the ball below the car, below the car	22	44.4
10.	Put the ball between the car wheels, between the car wheels	23	41.2

Table 4a

Intercorrelations of Three Tests for Experimental and Control Groups in Two Home-Based Intervention Programs

Washington, D.C. Project

	Experimental Group N=29			Control Group N=30		
	PPT	PPVT	S-B	PPT	PPVT	S-B
Preschool Preposition Test	1			1		
Peabody Picture Vocabulary Test	.61**	1		.52*	1	
Stanford-Binet IQ	.60**	.56*	1	.52*	.55*	1

Freeport, N.Y. Project

	Experimental Group N=26			Control Group N=17		
	PPT	PPVT	S-B	PPT	PPVT	S-B
Preschool Preposition Test	1			1		
Peabody Picture Vocabulary Test	.46*	1		.53*	1	
Stanford-Binet IQ	.74**	.69**	1	.71**	.72**	1

** $p < .001$ * $p < .005$ (Two-Tailed Test)

Table 4b Effects of Home-Based Intervention on Test Scores

Washington, D.C. Project

	N=29 Experimental Group		N=30 Control Group		t	Test
	Mean	S.D.	Mean	S.D.	t	p
Preschool Preposition Test	13.2	3.7	12.3	3.0	1.0	$>.2$
Peabody Picture Vocabulary Test	86.6	10.8	76.2	9.2	4.0	$<.001$
Stanford-Binet IQ	105.3	10.5	90.1	10.6	5.5	$<.001$

Freeport, N.Y. Project

	N=26 Experimental Group		N=17 Control Group		t	Test
	Mean	S.D.	Mean	S.D.	t	p
Preschool Preposition Test	14.3	3.8	15.8	2.9	1.4	$>.1$
Peabody Picture Vocabulary Test	90.3	12.9	84.7	16.2	1.2	$>.2$
Stanford-Binet IQ	105.5	12.8	99.3	14.6	1.5	$>.1$

Table 5

CLASSROOM BEHAVIOR RATINGS

Correlations of Preschool Preposition Test and PPVT[1] IQ

With Selected Items of Aaronson-Schaefer Classroom Behavior Description

N = 116 Ages 24 - 60 Months

Classroom Behavior Item	Preschool Preposition Test	PPVT IQ
1. Able in Comprehension and Problem Solving	.57*	.37*
2. Attentive and Persevering	.55*	.21
3. Self-reliant and Self-Sufficient	.49*	.20
4. Distractible and Hyperactive	-.47*	-.15
5. Well Adjusted	.41*	.37*
6. Considerate and Kind	.36*	.30*
7. Gregarious and Verbally Expressive	.33*	.24
8. Dependent, Wants Help Constantly	-.32*	-.11

[1] Peabody Picture Vocabulary Test

*$p < .005$ (Two-tailed Test)

Table 6

MATERNAL BEHAVIOR RATINGS
Washington, D.C. Project

Correlations between Total Test Scores for 3 Tests and Behavioral Ratings
For Sample of Black Low SES Males N = 28

	Preschool Preposition Test 36 months	PPVT IQ 36 months	Stanford-Binet IQ, 36 months
Maternal Behavior at 16 mos.			
1 Withdrawal of Relationship	-.55***	.13	-.40*
2 Punishment	-.47*	.08	-.40*
3 Use of Fear to Control	-.50**	.02	-.38*
4. Irritability	-.46*	.04	-.26
5 Punitiveness	-.60***	-.12	-.27
Maternal Behavior at 30 mos.			
1 Hostile Involvement	-.38*	-.12	-.34
2 Hostile Detachment	-.46*	-.24	-.31
3 Low Interest in Child's Education	-.46*	-.11	-.27
4 Low Verbal Expressiveness	-.60***	-.36	-.42*
5 Low Involvement	-.49**	-.11	-.41*
Maternal Behavior at 36 mos.			
1 Hostile Involvement	-.41*	-.03	-.35
2 Hostile Detachment	-.40*	-.01	-.45*
3 Low Interest in Child's Education	-.30	.09	-.40*
4 Low Verbal Expressiveness	-.53***	-.21	-.48**
5 Low Involvement	-.36	.16	-.27

[1]Peabody Picture Vocabulary Test
*** $p < .005$
** $p < .010$
* $p \leq .050$
(Two-tailed test)

Table 7

MATERNAL BEHAVIOR RATINGS
Freeport, N. Y. Project

Correlations between Total Test Scores for 3 Tests and Selected Subscales and Items of Levenstein's PACT (Parent and Child Together)

N = 23

Parent Behavior Variable from PACT	Preschool Preposition Test	PPVT[1] IQ	Stanford-Binet IQ
1. Parental Nurturance Subscale Score (Sum of Items 1-5)	.49*	.06	.32
2. Nurturance Subscale Item 4 "Seems Comforting to Child"	.47*	.02	.36
3. Parent's Verbal Interaction with Child Subscale Score	.46*	.13	.28
4. Nurturance Subscale Item 3 "Satisfies Child's Needs"	.43*	0	.18
5. Nurturance Subscale Item 5 "Uses Positive Reinforcement"	.42*	.30	.41*
6. Nurturance Subscale Item 1 "Shows Warmth to Child"	.40	.22	.29
7. Nurturance Subscale Item 2 "Verbalizes Affection to Child"	.27	.19	.10

* $p < .05$ (Two-Tailed Test)

1 Peabody Picture Vocabulary Test

PRESCHOOL PREPOSITION TEST*
May Aaronson and Earl S. Schaefer
Individual Test Record

(APPENDIX)

Case No. _____

Total Score--Part I _____

Total Score--Part II _____

Name _____ Sex _____

Birth Date _____ Age _____ Date of Test _____
Yrs., Mos., Days

Examiner _____ Testing time _____

Examiner's comments (continue on reverse side) Child was
a. ☐ Easy to test
b. ☐ Average to test
c. ☐ Hard to test

Read items to child. Score one point for each pass. "Put your finger on," "point to" or "touch" can be used instead of "show me."

Part I

(When Part I is completed, teach items that were failed.)	Score
1. Show me the car.	
2. Show me the boy.	
3. Show me the board that the car and the boy are on. (Teach that board is all the "yellow" part)	
4. Show me the wheels of the car. (Child should "show" or "finger" both tires)	
5. Show me the windows of the car. Which one is open?	
6. Show me the boy's face. (Child should "show" or "finger" the face but not the head)	
7. Show me the boy's hands. (Child should "show" or "finger" both hands)	
8. Show me the boy's feet. (Child should "show" or "finger" both feet)	
9. Show me the boy's head. (Child should "show" or "finger" the head but not the face)	
10. Show me the boy's shoes. (Child should "show" or "finger" both shoes)	
Total Score	

*Pre-standardization copy. Not for use or quotation without consent of the authors.

Part II Name _____

For scoring Part II, consult Rules and Diagrams for Scoring.

		Score
1.	Put the ball into the boy's hands, into the boy's hands.	
2.	Put the ball up as high on the board as you can, up as high on the board as you can.	
3.	Put the ball under the car, under the car.	
4.	Put the ball inside the window of the car, inside the window of the car.	
5.	Put the ball down as low on the board as you can, down as low on the board as you can.	
6.	Put the ball in back of the car, in back of the car.	
7.	Put the ball underneath the car, underneath the car.	
8.	Put the ball on the top of the car, on the top of the car.	
9.	Put the ball in front of the boy, in front of the boy.	
10.	Put the ball between the car wheels, between the car wheels.	
11.	Put the ball in back of the boy's shoe, in back of the boy's shoe.	
*12.	Put the ball anywhere on the car, on the car.	
13.	Put the ball between the boy and the car, between the boy and the car.	
14.	Put the ball below the car, below the car.	
*15.	Put the ball against the boy's head, against the boy's head.	
16.	Put the ball beneath the car, beneath the car.	
17.	Put the ball behind the boy, behind the boy.	
18.	Put the ball above the boy's head, above the boy's head.	
19.	Put the ball near the boy's shoe, near the boy's shoe.	
20.	Put the ball next to a wheel of the car, next to a wheel of the car.	
21.	Put the ball at the top of the boy's head, at the top of the boy's head.	
*22.	Put the ball on the boy's shoe, on the boy's shoe.	
23.	Put the ball in a car window, in a car window.	

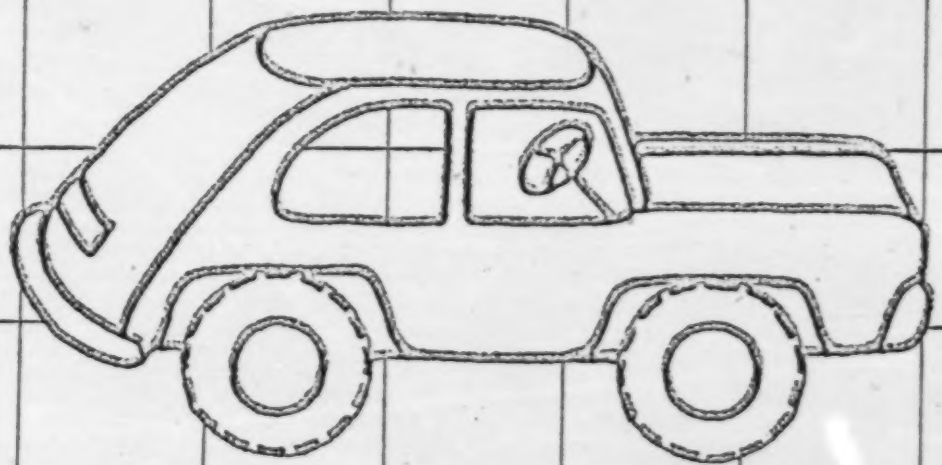
TOTAL SCORE

10-68 R

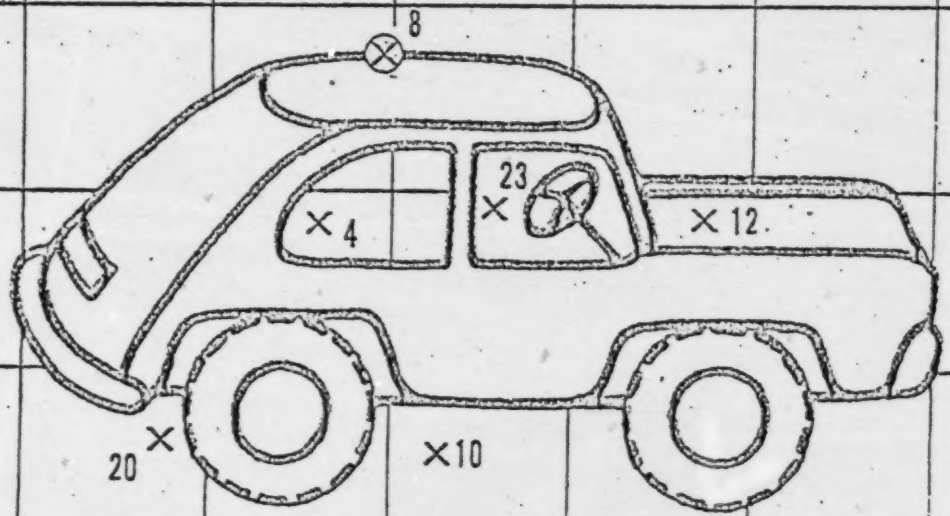
*Items to be eliminated

PICTURE SCORE SHEET

Name _____



SAMPLE SCORE SHEET WITH CODES FOR BALL PLACEMENT



1. X - Point of placement
2. X16 - Item No. next to point of placement
3. X 3/7 = Same point of placement for 2 items
4. X II / X19 - Dividing line to separate adjacent placements.
5. X - Feet of X to contact picture of object, if placement touches object
6. ⊗ - X to overlap line, encircled by O, if placement overlaps object

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